



## SEQUENCE LISTING

<110> Biofrontera Pharmaceuticals AG  
Lubbert, Hermann

<120> TRANSGENIC ANIMAL MODEL FOR  
NEURODEGENERATIVE DISEASES

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<140> 09/830,703

<141> 2001-04-26

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<213> Mus musculus

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<211> 3255

<212> DNA

<213> Mus musculus

<400> 20

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<210> 21

<211> 105

<212> PRT

<213> Mus musculus

<400> 21

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             20             25             30
Arg Gln Gly Val Pro Ala Asp Gln Leu Arg Val Ile Phe Ala Gly Lys
             35             40             45
Glu Leu Pro Asn His Leu Thr Val Gln Leu Asn Pro Pro Thr Thr Ala
             50             55             60
Phe Ser Ser Thr Ala Lys Ala Pro Ala Thr Arg Ser Ser Leu Glu Ser
65             70             75             80
Ser Glu Phe Ser Val Ala Pro Ala Asn Lys Gln Pro Ser Pro Trp Pro
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Arg Ala His Leu Ala Gly Thr Met Ser
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<210> 22

<211> 344

<212> PRT

<213> Mus musculus

<400> 22

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             20             25             30
Arg Gln Gly Val Pro Ala Asp Gln Leu Arg Val Ile Phe Ala Gly Lys
             35             40             45
Glu Leu Pro Asn His Leu Thr Val Gln Gly Pro Ser Cys Trp Asp Asp
             50             55             60
Val Leu Ile Pro Asn Arg Met Ser Gly Glu Cys Gln Ser Pro Asp Cys
65             70             75             80
Pro Gly Thr Arg Ala Glu Phe Phe Phe Lys Cys Gly Ala His Pro Thr
             85             90             95
Ser Asp Lys Asp Thr Ser Val Ala Leu Asn Leu Ile Thr Ser Asn Arg

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100	105	110
Arg Ser Ile Pro Cys Ile Ala Cys Thr Asp Val Arg Ser Pro Val Leu		
115	120	125
Val Phe Gln Cys Asn His Arg His Val Ile Cys Leu Asp Cys Phe His		
130	135	140
Leu Tyr Cys Val Thr Arg Leu Asn Asp Arg Gln Phe Val His Asp Ala		
145	150	155
Gln Leu Gly Tyr Ser Leu Pro Cys Val Ala Gly Cys Pro Asn Ser Leu		
165	170	175
Ile Lys Glu Leu His His Phe Arg Ile Leu Gly Glu Glu Gln Tyr Thr		
180	185	190
Arg Tyr Gln Gln Tyr Gly Ala Glu Glu Cys Val Leu Gln Met Gly Gly		
195	200	205
Val Leu Cys Pro Arg Pro Gly Cys Gly Ala Gly Leu Leu Pro Glu Gln		
210	215	220
Gly Gln Arg Lys Val Thr Cys Glu Gly Gly Asn Gly Leu Gly Cys Gly		
225	230	235
Phe Val Phe Cys Arg Asp Cys Lys Glu Ala Tyr His Glu Gly Asp Cys		
245	250	255
Asp Ser Leu Leu Glu Pro Ser Gly Ala Thr Ser Gln Ala Tyr Arg Val		
260	265	270
Asp Lys Arg Ala Ala Glu Gln Ala Arg Trp Glu Glu Ala Ser Lys Glu		
275	280	285
Thr Ile Lys Lys Thr Thr Lys Pro Cys Pro Arg Cys Asn Val Pro Ile		
290	295	300
Glu Lys Asn Gly Gly Cys Met His Met Lys Cys Pro Gln Pro Gln Cys		
305	310	315
Lys Leu Glu Trp Cys Trp Asn Cys Gly Cys Glu Trp Asn Arg Ala Cys		
325	330	335
Met Gly Asp His Trp Phe Asp Val		
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<210> 23  
 <211> 63  
 <212> PRT  
 <213> Mus musculus

<400> 23
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Arg Gln Gly Val Pro Ala Asp Gln Leu Arg Val Ile Phe Ala Gly Lys
35 40 45
Glu Leu Pro Asn His Leu Thr Val Gln Leu Ala Val Pro Thr Pro
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<210> 24  
 <211> 153  
 <212> PRT  
 <213> Mus musculus

<400> 24

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Val	Asp	Ser	Asp	Thr	Ser	Ile	Leu	Gln	Leu	Lys	Glu	Val	Val	Ala	Lys
			20					25					30		
Arg	Gln	Gly	Val	Pro	Ala	Asp	Gln	Leu	Arg	Val	Ile	Phe	Ala	Gly	Lys
		35					40					45			
Glu	Leu	Pro	Asn	His	Leu	Thr	Val	Gln	Asn	Cys	Asp	Leu	Glu	Gln	Gln
	50					55					60				
Ser	Ile	Val	His	Ile	Val	Gln	Arg	Pro	Arg	Arg	Arg	Ser	His	Glu	Thr
65					70					75				80	
Asn	Ala	Ser	Gly	Gly	Asp	Glu	Pro	Gln	Ser	Thr	Ser	Glu	Gly	Ser	Ile
			85						90				95		
Trp	Glu	Ser	Arg	Ser	Leu	Thr	Arg	Val	Asp	Leu	Ser	Ser	His	Thr	Leu
			100					105					110		
Pro	Val	Asp	Ser	Val	Gly	Leu	Ala	Val	Ile	Leu	Asp	Thr	Asp	Ser	Lys
		115					120					125			
Arg	Asp	Ser	Glu	Ala	Ala	Arg	Gly	Pro	Gly	Pro	Ile	Leu	Leu	Gly	Arg
	130					135					140				
Cys	Leu	Asn	Ser	Lys	Pro	Asp	Glu	Trp							
145					150										

<210> 25

<211> 194

<212> PRT

<213> Mus musculus

<400> 25

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Val	Asp	Ser	Asp	Thr	Ser	Ile	Leu	Gln	Leu	Lys	Glu	Val	Val	Ala	Lys
			20					25					30		
Arg	Gln	Gly	Val	Pro	Ala	Asp	Gln	Leu	Arg	Val	Ile	Phe	Ala	Gly	Lys
		35					40					45			
Glu	Leu	Pro	Asn	His	Leu	Thr	Val	Gln	Asn	Cys	Asp	Leu	Glu	Gln	Gln
	50					55					60				
Ser	Ile	Val	His	Ile	Val	Gln	Arg	Pro	Arg	Arg	Arg	Ser	His	Glu	Thr
65					70					75				80	
Asn	Ala	Ser	Gly	Gly	Asp	Glu	Pro	Gln	Ser	Thr	Ser	Glu	Gly	Ser	Ile
			85						90				95		
Trp	Glu	Ser	Arg	Ser	Leu	Thr	Arg	Val	Asp	Leu	Ser	Ser	His	Thr	Leu
			100					105					110		
Pro	Val	Asp	Ser	Val	Gly	Leu	Ala	Val	Ile	Leu	Asp	Thr	Asp	Ser	Lys
		115					120					125			
Arg	Asp	Ser	Glu	Ala	Ala	Arg	Gly	Pro	Val	Lys	Pro	Thr	Tyr	Asn	Ser
	130					135					140				
Phe	Phe	Ile	Tyr	Cys	Lys	Gly	Pro	Cys	His	Lys	Val	Gln	Pro	Gly	Lys
145					150					155				160	
Leu	Arg	Val	Gln	Cys	Gly	Thr	Cys	Lys	Gln	Ala	Thr	Leu	Thr	Leu	Ala
				165					170				175		
Gln	Asn	Phe	Ser	Leu	Asn	Val	Glu	His	Thr	Gln	Pro	Gln	Thr	Arg	Thr
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Arg	Arg														

<210> 26  
 <211> 183  
 <212> PRT  
 <213> Mus musculus

<400> 26

Met	Ile	Val	Phe	Val	Arg	Phe	Asn	Ser	Ser	Tyr	Gly	Phe	Pro	Val	Glu
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Val	Asp	Ser	Asp	Thr	Ser	Ile	Leu	Gln	Leu	Lys	Glu	Val	Val	Ala	Lys
			20					25					30		
Arg	Gln	Gly	Val	Pro	Ala	Asp	Gln	Leu	Arg	Val	Ile	Phe	Ala	Gly	Lys
		35					40					45			
Glu	Leu	Pro	Asn	His	Leu	Thr	Val	Gln	Asn	Cys	Asp	Leu	Glu	Gln	Gln
	50					55					60				
Ser	Ile	Val	His	Ile	Val	Gln	Arg	Pro	Arg	Arg	Arg	Ser	His	Glu	Thr
65					70					75					80
Asn	Ala	Ser	Gly	Gly	Asp	Glu	Pro	Gln	Ser	Thr	Ser	Glu	Gly	Ser	Ile
				85					90					95	
Trp	Glu	Ser	Arg	Ser	Leu	Thr	Arg	Val	Asp	Leu	Ser	Ser	His	Thr	Leu
			100					105					110		
Pro	Val	Asp	Ser	Val	Gly	Leu	Ala	Val	Ile	Leu	Asp	Thr	Asp	Ser	Lys
		115					120					125			
Arg	Asp	Ser	Glu	Ala	Ala	Arg	Gly	Pro	Val	Lys	Pro	Thr	Tyr	Asn	Ser
	130					135					140				
Phe	Phe	Ile	Tyr	Cys	Lys	Gly	Pro	Cys	His	Lys	Val	Gln	Pro	Gly	Lys
145					150					155					160
Leu	Arg	Val	Gln	Cys	Gly	Thr	Cys	Lys	Gln	Ala	Thr	Leu	Thr	Leu	Ala
				165					170						175
Gln	Leu	Ala	Val	Pro	Thr	Pro									
				180											

<210> 27  
 <211> 296  
 <212> PRT  
 <213> Mus musculus

<400> 27

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Val	Asp	Ser	Asp	Thr	Ser	Ile	Leu	Gln	Leu	Lys	Glu	Val	Val	Ala	Lys
			20					25					30		
Arg	Gln	Gly	Val	Pro	Ala	Asp	Gln	Leu	Arg	Val	Ile	Phe	Ala	Gly	Lys
		35					40					45			
Glu	Leu	Pro	Asn	His	Leu	Thr	Val	Gln	Asn	Cys	Asp	Leu	Glu	Gln	Gln
	50					55					60				
Ser	Ile	Val	His	Ile	Val	Gln	Arg	Pro	Arg	Arg	Arg	Ser	His	Glu	Thr
65					70					75					80
Asn	Ala	Ser	Gly	Gly	Asp	Glu	Pro	Gln	Ser	Thr	Ser	Glu	Gly	Ser	Ile
				85					90					95	
Trp	Glu	Ser	Arg	Ser	Leu	Thr	Arg	Val	Asp	Leu	Ser	Ser	His	Thr	Leu
			100					105					110		
Pro	Val	Asp	Ser	Val	Gly	Leu	Ala	Val	Ile	Leu	Asp	Thr	Asp	Ser	Lys
		115					120					125			

Arg	Asp	Ser	Glu	Ala	Ala	Arg	Gly	Pro	Val	Lys	Pro	Thr	Tyr	Asn	Ser
130						135					140				
Phe	Phe	Ile	Tyr	Cys	Lys	Gly	Pro	Cys	His	Lys	Val	Gln	Pro	Gly	Lys
145					150					155					160
Leu	Arg	Val	Gln	Cys	Gly	Thr	Cys	Lys	Gln	Ala	Thr	Leu	Thr	Leu	Ala
				165					170						175
Gln	Gly	Pro	Ser	Cys	Trp	Asp	Asp	Val	Leu	Ile	Pro	Asn	Arg	Met	Ser
			180					185						190	
Gly	Glu	Cys	Gln	Ser	Pro	Asp	Cys	Pro	Gly	Thr	Arg	Ala	Glu	Phe	Phe
		195					200					205			
Phe	Lys	Cys	Gly	Ala	His	Pro	Thr	Ser	Asp	Lys	Asp	Thr	Ser	Val	Ala
	210					215					220				
Leu	Asn	Leu	Ile	Thr	Ser	Asn	Arg	Arg	Ser	Ile	Pro	Cys	Ile	Ala	Cys
225					230					235					240
Thr	Asp	Val	Arg	Ser	Pro	Val	Leu	Val	Phe	Gln	Cys	Asn	His	Arg	His
				245					250					255	
Val	Ile	Cys	Leu	Asp	Cys	Phe	His	Leu	Tyr	Cys	Val	Thr	Arg	Leu	Asn
		260					265						270		
Asp	Arg	Gln	Phe	Val	His	Asp	Ala	Gln	Leu	Gly	Tyr	Ser	Leu	Pro	Cys
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	290					295									

<210> 28  
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 <213> Mus musculus

<400> 28  
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<210> 29  
 <211> 53  
 <212> PRT  
 <213> Mus musculus

<400> 29  
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 1 5 10 15  
 Val Asp Ser Asp Thr Ser Ile Leu Gln Leu Lys Glu Val Val Ala Lys  
 20 25 30  
 Arg Gln Gly Val Pro Ala Asp Gln Leu Arg Val Ile Phe Ala Gly Lys  
 35 40 45  
 Glu Leu Pro Ile Thr  
 50

<210> 30

<211> 77  
 <212> PRT  
 <213> Mus musculus

<400> 30

Met	Ile	Val	Phe	Val	Arg	Phe	Asn	Ser	Ser	Tyr	Gly	Phe	Pro	Val	Glu
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Val	Asp	Ser	Asp	Thr	Ser	Ile	Leu	Gln	Leu	Lys	Glu	Val	Val	Ala	Lys
			20					25					30		
Arg	Gln	Gly	Val	Pro	Ala	Asp	Gln	Leu	Arg	Val	Ile	Phe	Ala	Gly	Lys
		35					40					45			
Glu	Leu	Pro	Asn	His	Leu	Thr	Val	Gln	Asn	Cys	Asp	Leu	Glu	Gln	Gln
	50					55					60				
Ser	Ile	Val	His	Ile	Val	Gln	Arg	Pro	Arg	Glu	Lys	Ser			
65					70					75					

<210> 31  
 <211> 14  
 <212> PRT  
 <213> Mus musculus

<400> 31

Met	Ile	Val	Thr	Val	Thr	Trp	Asn	Asn	Arg	Val	Leu	Tyr	Thr
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<210> 32  
 <211> 464  
 <212> PRT  
 <213> Mus musculus

<400> 32

Met	Ile	Val	Phe	Val	Arg	Phe	Asn	Ser	Ser	Tyr	Gly	Phe	Pro	Val	Glu
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Val	Asp	Ser	Asp	Thr	Ser	Ile	Leu	Gln	Leu	Lys	Glu	Val	Val	Ala	Lys
			20					25					30		
Arg	Gln	Gly	Val	Pro	Ala	Asp	Gln	Leu	Arg	Val	Ile	Phe	Ala	Gly	Lys
		35					40					45			
Glu	Leu	Pro	Asn	His	Leu	Thr	Val	Gln	Asn	Cys	Asp	Leu	Glu	Gln	Gln
	50					55					60				
Ser	Ile	Val	His	Ile	Val	Gln	Arg	Pro	Arg	Arg	Arg	Ser	His	Glu	Thr
65					70					75				80	
Asn	Ala	Ser	Gly	Gly	Asp	Glu	Pro	Gln	Ser	Thr	Ser	Glu	Gly	Ser	Ile
			85						90					95	
Trp	Glu	Ser	Arg	Ser	Leu	Thr	Arg	Val	Asp	Leu	Ser	Ser	His	Thr	Leu
			100					105					110		
Pro	Val	Asp	Ser	Val	Gly	Leu	Ala	Val	Ile	Leu	Asp	Thr	Asp	Ser	Lys
		115					120					125			
Arg	Asp	Ser	Glu	Ala	Ala	Arg	Gly	Pro	Val	Lys	Pro	Thr	Tyr	Asn	Ser
	130					135					140				
Phe	Phe	Ile	Tyr	Cys	Lys	Gly	Pro	Cys	His	Lys	Val	Gln	Pro	Gly	Asn
145					150					155				160	
Leu	Arg	Val	Gln	Cys	Gly	Thr	Cys	Lys	Gln	Ala	Thr	Leu	Thr	Leu	Ala
				165					170					175	

Gln	Gly	Pro	Ser	Cys	Trp	Asp	Asp	Val	Leu	Ile	Pro	Asn	Arg	Met	Ser
			180					185					190		
Gly	Glu	Cys	Gln	Ser	Pro	Asp	Cys	Pro	Gly	Thr	Arg	Ala	Glu	Phe	Phe
		195					200					205			
Phe	Lys	Cys	Gly	Ala	His	Pro	Thr	Ser	Asp	Lys	Asp	Thr	Ser	Val	Ala
	210					215					220				
Leu	Asn	Leu	Ile	Thr	Ser	Asn	Arg	Arg	Ser	Ile	Pro	Cys	Ile	Ala	Cys
225					230					235					240
Thr	Asp	Val	Arg	Ser	Pro	Val	Leu	Val	Phe	Gln	Cys	Asn	His	Arg	His
			245						250					255	
Val	Ile	Cys	Leu	Asp	Cys	Phe	His	Leu	Tyr	Cys	Val	Thr	Arg	Leu	Asn
		260						265					270		
Asp	Arg	Gln	Phe	Val	His	Asp	Ala	Gln	Leu	Gly	Tyr	Ser	Leu	Pro	Cys
	275						280					285			
Val	Ala	Gly	Cys	Pro	Asn	Ser	Leu	Ile	Lys	Glu	Leu	His	His	Phe	Arg
	290					295					300				
Ile	Leu	Gly	Glu	Glu	Gln	Tyr	Thr	Arg	Tyr	Gln	Gln	Tyr	Gly	Ala	Glu
305					310					315					320
Glu	Cys	Val	Leu	Gln	Met	Gly	Gly	Val	Leu	Cys	Pro	Arg	Pro	Gly	Cys
			325						330					335	
Gly	Ala	Gly	Leu	Leu	Pro	Glu	Gln	Gly	Gln	Arg	Lys	Val	Thr	Cys	Glu
			340					345					350		
Gly	Gly	Asn	Gly	Leu	Gly	Cys	Gly	Phe	Val	Phe	Cys	Arg	Asp	Cys	Lys
		355					360					365			
Glu	Ala	Tyr	His	Glu	Gly	Asp	Cys	Asp	Ser	Leu	Leu	Glu	Pro	Ser	Gly
	370					375					380				
Ala	Thr	Ser	Gln	Ala	Tyr	Arg	Val	Asp	Lys	Arg	Ala	Ala	Glu	Gln	Ala
385					390					395					400
Arg	Trp	Glu	Glu	Ala	Ser	Lys	Glu	Thr	Ile	Lys	Lys	Thr	Thr	Lys	Pro
			405						410					415	
Cys	Pro	Arg	Cys	Asn	Val	Pro	Ile	Glu	Lys	Asn	Gly	Gly	Cys	Met	His
			420					425					430		
Met	Lys	Cys	Pro	Gln	Pro	Gln	Cys	Lys	Leu	Glu	Trp	Cys	Trp	Asn	Cys
	435					440					445				
Gly	Cys	Glu	Trp	Asn	Arg	Ala	Cys	Met	Gly	Asp	His	Trp	Phe	Asp	Val
	450					455					460				

<210> 33

<211> 464

<212> PRT

<213> Mus musculus

<400> 33

Met	Ile	Val	Phe	Val	Arg	Phe	Asn	Ser	Ser	Tyr	Gly	Phe	Pro	Val	Glu
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Val	Asp	Ser	Asp	Thr	Ser	Ile	Leu	Gln	Leu	Lys	Glu	Val	Val	Ala	Lys
			20					25					30		
Arg	Gln	Gly	Val	Pro	Ala	Asp	Gln	Leu	Arg	Val	Ile	Phe	Ala	Gly	Lys
		35					40					45			
Glu	Leu	Pro	Asn	His	Leu	Thr	Val	Gln	Asn	Cys	Asp	Leu	Glu	Gln	Gln
	50					55					60				
Ser	Ile	Val	His	Ile	Val	Gln	Arg	Pro	Arg	Arg	Arg	Ser	His	Glu	Thr
65					70					75				80	
Asn	Ala	Ser	Gly	Gly	Asp	Glu	Pro	Gln	Ser	Thr	Ser	Glu	Gly	Ser	Ile

85					90					95					
Trp	Glu	Ser	Arg	Ser	Leu	Thr	Arg	Val	Asp	Leu	Ser	Ser	His	Thr	Leu
			100					105					110		
Pro	Val	Asp	Ser	Val	Gly	Leu	Ala	Val	Ile	Leu	Asp	Thr	Asp	Ser	Lys
		115					120						125		
Arg	Asp	Ser	Glu	Ala	Ala	Arg	Gly	Pro	Val	Lys	Pro	Thr	Tyr	Asn	Ser
		130					135						140		
Phe	Phe	Ile	Tyr	Cys	Lys	Gly	Pro	Cys	His	Lys	Val	Gln	Pro	Gly	Lys
145							150					155			160
Leu	Arg	Val	Gln	Cys	Gly	Thr	Cys	Lys	Gln	Ala	Thr	Leu	Thr	Leu	Ala
				165					170					175	
Gln	Gly	Pro	Ser	Cys	Trp	Asp	Asp	Val	Leu	Ile	Pro	Asn	Arg	Met	Ser
			180					185					190		
Gly	Glu	Cys	Gln	Ser	Pro	Asp	Cys	Pro	Gly	Thr	Arg	Ala	Glu	Phe	Phe
		195					200					205			
Phe	Lys	Cys	Gly	Ala	His	Pro	Thr	Ser	Asp	Lys	Asp	Thr	Ser	Val	Ala
		210					215				220				
Leu	Asn	Leu	Ile	Thr	Ser	Asn	Arg	Arg	Ser	Ile	Pro	Cys	Ile	Ala	Cys
225						230					235				240
Thr	Asp	Val	Arg	Ser	Pro	Val	Leu	Val	Phe	Gln	Cys	Asn	His	Arg	His
				245					250					255	
Val	Ile	Cys	Leu	Asp	Cys	Phe	His	Leu	Tyr	Cys	Val	Thr	Arg	Leu	Asn
			260					265				270			
Asp	Arg	Gln	Phe	Val	His	Asp	Ala	Gln	Leu	Gly	Tyr	Ser	Leu	Pro	Cys
		275					280					285			
Val	Ala	Gly	Cys	Pro	Asn	Ser	Leu	Ile	Lys	Glu	Leu	His	His	Phe	Arg
		290				295					300				
Ile	Leu	Gly	Glu	Glu	Gln	Tyr	Thr	Arg	Tyr	Gln	Gln	Tyr	Gly	Ala	Glu
305						310					315				320
Glu	Cys	Val	Leu	Gln	Met	Gly	Gly	Val	Leu	Cys	Pro	Arg	Pro	Gly	Cys
				325					330					335	
Gly	Ala	Gly	Leu	Leu	Pro	Glu	Gln	Gly	Gln	Arg	Lys	Val	Thr	Cys	Glu
			340					345					350		
Gly	Gly	Asn	Gly	Leu	Gly	Cys	Gly	Phe	Val	Phe	Cys	Arg	Asp	Cys	Lys
		355					360					365			
Glu	Ala	Tyr	His	Glu	Gly	Asp	Cys	Asp	Ser	Leu	Leu	Glu	Pro	Ser	Gly
		370				375					380				
Ala	Thr	Ser	Gln	Ala	Tyr	Arg	Val	Asp	Lys	Arg	Ala	Ala	Glu	Gln	Ala
385						390					395				400
Arg	Trp	Glu	Glu	Ala	Ser	Lys	Glu	Thr	Ile	Lys	Lys	Thr	Asn	Lys	Pro
				405					410				415		
Cys	Pro	Arg	Cys	Asn	Val	Pro	Ile	Glu	Lys	Asn	Gly	Gly	Cys	Met	His
			420					425				430			
Met	Lys	Cys	Pro	Gln	Pro	Gln	Cys	Lys	Leu	Glu	Trp	Cys	Trp	Asn	Cys
		435					440					445			
Gly	Cys	Glu	Trp	Asn	Arg	Ala	Cys	Met	Gly	Asp	His	Trp	Phe	Asp	Val
		450				455					460				

<210> 34

<211> 451

<212> PRT

<213> Mus musculus

<400> 34

Met	Ile	Val	Phe	Val	Arg	Phe	Asn	Ser	Ser	Tyr	Gly	Phe	Pro	Val	Glu
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Val	Asp	Ser	Asp	Thr	Ser	Ile	Leu	Gln	Leu	Lys	Glu	Val	Val	Ala	Lys
			20					25					30		
Arg	Gln	Gly	Val	Pro	Ala	Asp	Gln	Leu	Arg	Val	Ile	Phe	Ala	Gly	Lys
		35					40					45			
Glu	Leu	Pro	Asn	His	Leu	Thr	Val	Gln	Asn	Cys	Asp	Leu	Glu	Gln	Gln
	50					55					60				
Ser	Ile	Val	His	Ile	Val	Gln	Arg	Pro	Arg	Arg	Arg	Ser	His	Glu	Thr
65					70					75					80
Asn	Ala	Ser	Gly	Gly	Asp	Glu	Pro	Gln	Ser	Thr	Ser	Glu	Gly	Ser	Ile
			85						90					95	
Trp	Glu	Ser	Arg	Ser	Leu	Thr	Arg	Val	Asp	Leu	Ser	Ser	His	Thr	Leu
			100					105					110		
Pro	Val	Asp	Ser	Val	Gly	Leu	Ala	Val	Ile	Leu	Asp	Thr	Asp	Ser	Lys
		115					120					125			
Arg	Asp	Ser	Glu	Ala	Ala	Arg	Gly	Pro	Val	Lys	Pro	Thr	Tyr	Asn	Ser
	130					135					140				
Phe	Phe	Ile	Tyr	Cys	Lys	Gly	Pro	Cys	His	Lys	Val	Gln	Pro	Gly	Lys
145					150					155					160
Leu	Arg	Val	Gln	Cys	Gly	Thr	Cys	Lys	Gln	Ala	Thr	Leu	Thr	Leu	Ala
			165					170						175	
Gln	Gly	Pro	Ser	Cys	Trp	Asp	Asp	Val	Leu	Ile	Pro	Asn	Arg	Met	Ser
			180					185					190		
Gly	Glu	Cys	Gln	Ser	Pro	Asp	Cys	Pro	Gly	Thr	Arg	Ala	Glu	Phe	Phe
		195					200					205			
Phe	Lys	Cys	Gly	Ala	His	Pro	Thr	Ser	Asp	Lys	Asp	Thr	Ser	Val	Ala
	210					215					220				
Leu	Asn	Leu	Ile	Thr	Ser	Asn	Arg	Arg	Ser	Ile	Pro	Cys	Ile	Ala	Cys
225					230					235					240
Thr	Asp	Val	Arg	Ser	Pro	Val	Leu	Val	Phe	Gln	Cys	Asn	His	Arg	His
			245						250					255	
Val	Ile	Cys	Leu	Asp	Cys	Phe	His	Leu	Tyr	Cys	Val	Thr	Arg	Leu	Asn
			260					265					270		
Asp	Arg	Gln	Phe	Val	His	Asp	Ala	Gln	Leu	Gly	Tyr	Ser	Leu	Pro	Cys
		275				280						285			
Val	Ala	Gly	Cys	Pro	Asn	Ser	Leu	Ile	Lys	Glu	Leu	His	His	Phe	Arg
	290					295					300				
Ile	Leu	Gly	Glu	Glu	Gln	Tyr	Thr	Arg	Tyr	Gln	Gln	Tyr	Gly	Ala	Glu
305					310					315					320
Glu	Cys	Val	Leu	Gln	Met	Gly	Gly	Val	Leu	Cys	Pro	Arg	Pro	Gly	Cys
			325					330					335		
Gly	Ala	Gly	Leu	Leu	Pro	Glu	Gln	Gly	Gln	Arg	Lys	Val	Thr	Cys	Glu
			340					345					350		
Gly	Gly	Asn	Gly	Leu	Gly	Cys	Gly	Phe	Val	Phe	Cys	Arg	Asp	Cys	Lys
		355				360						365			
Glu	Ala	Tyr	His	Glu	Gly	Asp	Cys	Asp	Ser	Leu	Leu	Glu	Pro	Ser	Gly
	370					375					380				
Ala	Thr	Ser	Gln	Ala	Tyr	Arg	Val	Asp	Lys	Arg	Ala	Ala	Glu	Gln	Ala
385					390					395					400
Arg	Trp	Glu	Glu	Ala	Ser	Lys	Glu	Thr	Ile	Lys	Lys	Thr	Thr	Lys	Pro
			405						410					415	
Cys	Pro	Arg	Cys	Asn	Val	Pro	Ile	Glu	Lys	Asn	Gly	Gly	Cys	Met	His
			420					425					430		
Met	Lys	Cys	Pro	Gln	Pro	Gln	Cys	Lys	Leu	Glu	Trp	Cys	Trp	Asn	Cys

435  
Gly Cys Glu  
450

440

445